

Message Text

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ACTION SCI-06

INFO OCT-01 AF-10 ADP-00 SS-15 NSC-10 CIAE-00 DODE-00

INR-10 NSAE-00 PA-03 RSC-01 USIA-12 PRS-01 XMB-07

EB-11 COME-00 TRSE-00 AGR-20 OPIC-12 INT-08 AID-20

IGA-02 CU-04 GAC-01 ACDA-19 PM-09 L-03 NASA-04 RSR-01

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FM AMEMBASSY BAMA KO

TO SECSTATE WASHDC 7079

UNCLAS SECTION 1 OF 2 BAMA KO 1292

E. O. 11652: N/ A

TAGS: TECH, ML

SUBJ: PROPOSED MALIAN SPACE PROGRAM

REF: BAMA KO 1228#

1. SUMMARY: WE PROPOSE THAT USG AGREE TO EXTEND VERY SUCCESSFUL US- MALIAN SATELLITE PROGRAM (REFTEL) NEXT STEP IN FY74 BY:
(A) PROVIDING TRAINING IN SATELLITE IMAGERY FOR THREE MALIAN TECHNICIANS; (B) UPGRADING MALIAN INTERPRETATION CAPABILITIES BY PROVISION OF SMALL AMOUNT UNCOMPLICATED EQUIPMENT; (C) UNDERTAKING JOINT US- MALIAN " GROUND TRUTH" INVESTIGATIONS IN AGRICULTURE, HYDROLOGY AND MINERALOGY, AND (D) POSSIBLY PROVIDING SOME HELP RE MAP PRODUCTION AND REPRODUCTION. END SUMMARY.
2. ESSENTIAL ASPECT OF ANY CONTINUING US- MALIAN COOPERATION PROGRAM, ON SPACE IMAGERY OR ANYTHING ELSE, IS TO ORIENT IT TOWARDS MALIAN NEEDS AND DESIRES. WITH THIS IN MIND, WE PROPOSE FOLLOWING CYCLE OF US- MALIAN INTERACTION IN DECIDING WHERE TO GO NEXT. WE SHOULD THUS PROPOSE TO MALIANS THAT US- MALIAN WORKING GROUP ON SPACE COOPERATION BE SET UP TO, AMONG OTHER THINGS, DISCUSS

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AND RECOMMEND PROGRAM OF COOPERATION TO THEIR GOVERNMENTS. WE SUGGEST JULY MEETING OF WORKING GROUP. ON THE US SIDE, TEAM SHOULD PROBABLY BE CHAIRED BY AID AND INCLUDE REPRESENTATIVES OF NASA, USGS AND USDA. PERHAPS AD HOC REPRESENTATION FROM AMERICAN UNIVERSITY AND CATHOLIC UNIVERSITY SHOULD ALSO BE INCLUDED SINCE LATTER INSTITUTIONS ALREADY REPRESENTED IN INFORMAL MALI SPACE COMMITTEE. WE ARE ANXIOUS TO MAINTAIN WIDEST RANGE OF PRIVATE ACADEMIC AND SCIENTIFIC INTEREST IN MALI PROGRAM, BOTH AS SOURCES OF ENCOURAGEMENT AND RESERVOIR FOR EXCHANGE OF IDEAS WITH MALIANS, AS WELL AS FOR POSSIBLE MARGINAL SOURCE OF FUNDS. AT JULY MEETING US TEAM SHOULD INCLUDE SCIENTISTS FROM SEVERAL DISCIPLINES. MEETING SHOULD BE IN BAMAKO WHERE MAMADOU KONATE, WHO WOULD PROBABLY BE MALI'S WORKING LEADER, COULD HAVE ACCESS TO MINISTERS WHEN DECISIONS REQUIRED. ALSO HAVING MEETING IN BAMAKO WOULD ALLOW INVOLVEMENT MORE MALIANS,

3. WE KNEW ENOUGH FROM CONTINUING INFORMAL TALKS THAT MALIANS WANT TO ALLOW US TO UNDERTAKE PRELIMINARY PLANNING FOR SUCH A MEETING. HERE ARE OUR PROPOSALS WHICH TO LARGE DEGREE ARE RESPONSIVE TO MALIAN WISHES:

A. TRAINING: US HAS INTEREST IN ENCOURAGING INTERDISCIPLINARY AND MULTI- DISCIPLINARY STUDY AND USE OF ERTS IMAGERY IN MALI SO BOTH WE AND MALIANS CAN LEARN AS MUCH AS POSSIBLE ABOUT APPLICATION THESE TECHNIQUES IN A POORER DEVELOPING COUNTRY, HOPEFULLY FOR LATER APPLICATION ELSEWHERE. MALIANS SHOULD THEREFORE BE ENCOURAGED IN THEIR PLANS TO APPLY FOR:

(1) ADVANCED TRAINING FOR KONATE. HE IS SCHEDULED TO GO TO SIOUX FALLS REMOTE SENSING TRAINING COURSE IN JUNE, BUT HE MAY ALREADY BE BEYOND THIS LEVEL AND POSSIBILITIES SHOULD BE EXAMINED OF SUBSTITUTING IN- SERVICE TRAINING IN WASHINGTON.

(2) BEGINNING TRAINING FOR ONE MALIAN AGRONOMIST, WHO SHOULD IF POSSIBLE BE AGRICULTURAL ECOLOGIST WITH CLIMATOLOGICAL EXPERIENCE. TRAINING SUCH A MAN IS BEST WAY TO EXPAND INTEREST IN AND KNOWLEDGE OF ERTS POTENTIAL IN AGRICULTURAL AREA, AND THAT IS A KEY AREA FOR STUDY OF DROUGHT. WE PROPOSE, IF CANDIDATE CAN BE FOUND WHO SPEAKS ENGLISH, TO SEND SUCH A MAN TO SIOUX FALLS AND THEN TO A US UNIVERSITY SUCH AS PURDUE OR UC- BERKELY FOR FOUR MONTHS' TRAINING IN AGRICULTURAL ASPECTS OF REMOTE SENSING.

(3) BEGINNING TRAINING FOR HYDROLOGIST. KONATE HAS SOME UNCLASSIFIED

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KNOWLEGE IN THIS FIELD, BUT HE IS OVERWORKED AND DOES NOT HAVE FULL PROFESSIONAL BACKGROUND TO GET MOST OUT OF ERTS IMAGERY IN THIS SPHERE, STUDY OF WHICH IS PROBABLY CRUCIAL TO DEEPER UNDERSTANDING OF DROUGHT CYCLES. HYDROLOGIST, AFTER SIOUX FALLS SCHOOL, COULD PROFIT FROM IN- HOUSE WORK WITH EROS PROGRAM OR NASA.

B. UPGRADING MALIAN INTERPRETATION CAPABILITIES:

MALI'S PRESENT CAPABILITIES TO INTERPRET SPACE IMAGERY COULD BE SUBSTANTIALLY AND RELATIVELY INEXPENSIVELY INCREASED BY PROVISION OF PROJECTORS, SIMPLE PHOTOGRAPHIC EQUIPMENT, SCREENS, AND OTHER VIEWING SYSTEMS FOR DATA INTERPRETATION. ALSO MALI NEEDS MINIMUM CAPABILITY TO MAKE COLOR COMPOSITES. HIGHEST ESTIMATE WE HAVE RECEIVED IS \$20,000 TO PROVIDE NEXT LEVEL OF CAPABILITY BEYOND VISUAL INSPECTION ON LIGHT TABLES. AIM OF EQUIPMENT AUGMENTATION WOULD BE TO ASSEMBLE MINIMUM EQUIPMENT FOR EASILY MAINTAINABLE BUT HIGHLY WORKABLE NATIONAL CENTER, WHICH COULD ALSO BE USED FOR POSSIBLE REGIONAL PROGRAMS. WITH BAD VOLTAGE PROBLEMS, SOPHISTICATED ELECTRONIC GEAR SHOULD BE AVOIDED.

C. GROUND TRUTH INVESTIGATIONS - AGRICULTURE AND HYDROLOGY:

IN BAMAKO 1228, WE RECOMMENDED US STUDY WITH EACH SAHELIAN COUNTRY EFFECT OF DROUGHT ON WATER AND AGRICULTURAL RESOURCES. IN MALI, THIS PARTICULARLY IMPORTANT BECAUSE THIS IS SAHELIAN COUNTRY POSSESSING 80 PERCENT OF THAT PART OF NIGER RIVER VALLEY WHICH PASSES THROUGH SAHELIAN AND SOUDANIC ECOLOGICAL ZONES.

MALIANS NEEDS TO ASSESS RIVER LEVELS, SPRING WATER AND UNDERGROUND WATER AS SEEN FROM SATELLITE PHOTOGRAPHY.

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NOTE BY OC/ T:# BAMAKO 1228 NOT RECEIVED IN DEPT. BELIEVE SHOULD READ BAMAKO 1218.

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INFO OCT-01 AF-10 ADP-00 GAC-01 ACDA-19 CIAE-00 DODE-00

PM-09 INR-10 L-03 NSAE-00 NASA-04 NSC-10 RSC-01 SS-15

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TO SECSTATE WASHDC 7080

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IT MOST IMPORTANT IF AT ALL POSSIBLE TO START IN THIS EXTREME

DROUGHT YEAR, WHICH HOPEFULLY GIVES MALI LOW BENCH MARK FOR DROUGHT CYCLE. SAME IS TRUE OF EARLY SCIENTIFIC EXAMINATION OF CROPS, TREES, BUSH AND MEADOWS. IN TERMS OF HUMAN RESOURCES, US INVESTIGATOR SHOULD BE MATCHED BY MALIAN CO- INVESTIGATOR. HARD FOR US TO KNOW HOW MANY AMERICAN INVESTIGATORS COULD BE USED OR COULD BE MADE AVAILABLE. PRESUMABLY SOME NOW COULD VISIT TWO OR THREE SAHELIAN COUNTRIES. THEY MIGHT NEED LANDROVERS OR USE OF LIGHT PLANE, BUT THESE COULD PROBABLY BE RENTED LOCALLY.

D. "GROUND TRUTH" INVESTIGATIONS - GEOLOGY: IN 1973, GOM PLANS GEOLOGICAL EXPEDITION TO GAO AREAS OF EASTERN MALI TO INVESTIGATE, ON THE GROUND, RELEVANCE OF DATA ALREADY GAINED FROM ERTS IMAGERY. DISCOVERY OF EXPLOITABLE MINERAL DEPOSITS HAS HIGHEST PRIORITY IN THIS RESOURCE- POOR, TAX- POOR COUNTRY. BEFORE EXPEDITION LAUNCHED, AMERICAN INVESTIGATOR COULD WORK WITH MALIAN GEOLOGISTS IN REINTERPRETATION OF LATEST ERTS IMAGERY. USG COULD ALSO PROVIDE LIGHT AIRCRAFT WHICH WOULD NOT ONLY EASE LOGISTICS OF "CAMPAIGN" BUT WOULD ALSO INCREASE AND VALUE OF THINGS SEEN FROM AIR. ON GROUND USG COULD PROVIDE SMALL NUMBER LANDROVERS, TRUCKS AND PERHAPS SOME CAMPING EQUIPMENT PLUS GASOLINE FOR VEHICLES. HOPEFULLY IN FY75 THERE COULD BE JOINT "GROUND TRUTH" WORK IN AGRICULTURE AND HYDROLOGY,
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AND MORE ON MINERALOGY.

E. MAP- MAKING: MALIANS WILL HELP IN PRINTING COLORED MAPS WHICH THEY HAVE REVISED AS RESULT OF ERTS OBSERVATIONS. COULD SOME US AGENCY PRINT LIMITED NUMBER OF THESE MAPS OR ALTERNATIVELY PRINT INEXPENSIVE PHOTO MAPS OF PREPARED ERTS IMAGES? HELP IN AREA OF PRODUCING COLOR PRINTS MIGHT BE SECOND.

3. WHAT IS IN THIS FOR US? - AMOUNT OF MONEY WHICH WOULD BE SPENT ON EXPANDED PROGRAM OF THIS SCOPE WOULD NOT BE GREAT. WE CONVINCED, FURTHER, THAT USE OF SATELLITE IMAGERY FOR ASSESSING RESOURCE INVENTORY AND DEVELOPMENT IN WORLD'S POOREST COUNTRIES, MOST OF WHICH ARE IN ARID AREAS, HAS GREAT POTENTIAL. REFINEMENT OF THESE TECHNIQUES STILL HAS LONG WAY TO GO BOTH IN PURELY SCIENTIFIC TERMS AND IN TERMS OF HOW TO CARRY OUT SUCH PROGRAMS WITH DEVELOPING PEOPLES. AFRICA BADLY NEEDS THIS TECHNOLOGY AND MALI IS EXCELLENT PHYSICALLY (BECAUSE OF ITS RIVER VALLEY AND EASILY OBSERVABLE DESERT SAHELIAN AND SOUDANIAN ZONES), HUMANLY (BECAUSE OF RELATIVELY HIGHER AVAILABILITY HERE OF WELL- TRAINED AFRICAN SCIENTISTS), AND POLITICALLY (BECAUSE RESTRAINING INFLUENCE OF FRENCH AGAINST NON- FRENCH INFLUENCE NOT PRESENT HERE AS IT IS IN MANY OTHER WEST AFRICAN COUNTRIES). WE WILL GAIN SCIENTIFICALLY AND POLITICALLY IF WE CAN CARRY THROUGH WITH PRESENT PROMISING PROGRAM. WE ALSO BELIEVE THAT COLLECTION

AND ANALYSIS OF ERTS DATA FOR MALI WOULD BE HELPFUL IN
DEVELOPING AND STIMULATING INTEREST OF PRIVATE INVESTORS,
PARTICULARLY IN MINERALS SECTOR.

4. NEXT STEP, IF WASHINGTON AGENCIES CONCUR, WOULD BE TO PROPOSE
DATE FOR MEETING OF WORKING GROUP IN BAMAKO. BY THAT TIME,
MALIAN CONCEPTS WILL BE FIRM, AS HOPEFULLY WILL ALSO BZOUS
SIDE'S IDEA OF WHAT WOULD BE POSSIBLE PHYSICALLY AND FISCALLY.
ONLY REALLY URGENT ASPECT OF ERTS PROGRAM IS TO GET MOVING SOONEST
ON DROUGH STUDIES.

5. WE HAVE LOOKED AT PROBLEM OF WHETHER US- MALI SATELLITE PROGRAM
COULD OR SHOULD BE EXTENDED TO OR INTEGRATED INTO A BROADER
US- SAHELAIC SATELLITE PROGRAM. WE BELIEVE THAT INTERGRATING US-
MALI
PROGRAM INTO BROADER ONE, EXCEPT AS REGARDS SAHEL DROUGHT
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STUDIES, WOULD INTRODUCE UNNECESSARY RIGIDITIES RE COORDINATION,
DIFFERENT STAGES OF ADVANCEMENT DIFFERENT PARTNERS, ETC. WE ALSO
DO
NOT KNOW WHETHER ENOUGH US RESOURCES AVAILABLE AT THIS
STAGE TO UNDERTAKE MALI PROGRAM AND PROGRAM FOR OTHER COUNTRIES
TOO. IF ONLY LIMITED RESOURCES AVAILABLE, WE SHOULD CONCENTRATE
ENOUGH
ON RESOURCES IN MALI FOR NEXT YEAR OR SO TO DEVELOP CRITICAL
VOLUME OF EXPERIENCE NECESSARY TO MAKE REAL RESEARCH PROGRESS
POSSIBLE. THEREAFTER, WE COULD EXTEND BROADER U. S. PROGRAMS
TO OTHER SAHELIAN COUNTRIES.

6. RDO HAS CONCURRED IN THIS MESSAGE.
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NOTE BY OC/ T: # BAMAKO 1228 NOT RECEIVED IN DEPT. BELIEVE SHOULD
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